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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 166

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BRIEFS

LAO, SOVIET SATTELITE AID SIGNED--Vientiane, 7 May (KPL)--A memorandum on installation of satellite communication was signed here on May 6 between Lao and Soviet technicians. The Soviet side will help the Lao Foreign Ministry in installing this communication station. The memorandum was signed by Phimpho Luangpani, official of Foreign Affairs Ministry and the head of the technical department of the Soviet Committee for Economic Relations With Other Socialist Countries. The Soviet delegation of the said committee left for home on the afternoon of the same day after ending its 16-day visit to Laos. [Text] [Vientiane KPL in English 0922 GMT 7 May 81 BK]

CSO: 5500/2213

SINGAPORE, INDONESIA SIGN NOTE ON TELECOMMUNICATIONS

BK231323 Singapore Domestic Service in English 1130 GMT 23 May 81

[Text] The Medan-Singapore submarine cable could be the beginning of a trans-Indian Ocean submarine cable providing telecommunication links between Southeast Asia and the rest of the world, particularly the Middle East and Europe.

Communications Minister Ong Teng Cheong said this when he signed a memorandum of understanding for the laying of a Medan-Singapore submarine cable and the use of the Palapa satellite in Indonesia.

Indonesian Minister for Transport, Communications and Tourism Air Marshal Rusmin Nurjadin signed for his government. The ceremony was held this morning at (Com) Center.

Telecommunication officials from both countries will work out the cost and capacity of the Medan-Singapore cable in the next few months. The starting date of operation will also be decided then. The cable is expected to be ready by 1983.

On the use of the Indonesian Palapa satellite system by Singapore, Mr Ong said it would help improve communications, particularly between Singapore and towns in Sumatera and Kalimantan.

While the Palapa system would complement the existing telecommunication links between the two countries, it would also contribute to increase understanding among the ASEAN member countries through an exchange of cultural television programs. Even more benefits could be expected in the future.

Marshal Nurjadin said that the implementation of the communication links through the Palapa satellite to several destinations in Indonesia would further improve telecommunication services. He agreed with Mr Ong that the development of submarine cables between Singapore and Medan would be very beneficial in the future.

He said the implementation of the memorandum of understanding would start another important phase in the development of telecommunication services between the two countries.

CSO: 5500/2214

BRIEFS

INDIA-BANGLADESH MICROWAVE LINK--A multichannel microwave radio telecommunication link has been established between India and Bangladesh. The inaugural call was received by Commerce Minister Pranab Mukherjee in New Delhi on 19 May from Dacca. The caller was Bangladesh Minister for Post, Telegraph and Telephone. Mukherjee also spoke to Communications Minister C. M. Stephen who is now in Dacca to sign a telecommunication agreement with Bangladesh. [BK211331 Delhi Domestic Service in English 0830 GMT 19 May 81]

CSO: 5500/2214

BRIEFS

TELECOMMUNICATION NETWORK MODERNIZATION--In Trivandrum, Union Communications Minister C. M. Stephen said that the country will go in for the electronic system in a big way to modernise the telecommunication network. Global tenders have been called for to acquire 10 lakh electronic lines, he added. Of these, about 60,000 lines are expected to be available by the end of the sixth plan. [Text] [BK171313 Delhi ISI Diplomatic Information Service in English 1441 GMT 16 May 81]

CSO: 5500/2214

OFFICIAL VIEWS NATIONAL COMMUNICATION SYSTEM

BK191134 Jakarta ANTARA in English 1045 GMT 19 May 81

[Text] Manado, May 19 (ANTARA)--Indonesia's present communication system is no longer capable of accommodating or meeting the existing public needs and should therefore be replaced by one that has been designed to cope with public requirements until the start of the 21st century.

This was stated by Nasution, chief of the Communications Ministry's research and development division, here Tuesday while making remarks at the opening of a service conference on the drafting of basic guidelines on the designing of North Sulawesi's communications system.

Since Indonesia consists of numerous big and small islands while each had reached different levels of development and each had different geographic features, it was only proper that every province is allowed to draw up its own communication system in accordance with the conditions prevailing in the area concerned. After each province had decided on its communication system, the communication system of all provinces could then be linked to each other to form a regional and national one.

In this connection Nasution said North Sulawesi was playing a very important role in geopolitical as well as geostrategic sense because it was located at the border with a foreign country and close to the shipping lanes in the Strait of Makassar. Therefore, Nasution said, North Sulawesi's communication system should be designed in such a way that it will be capable of functioning in accordance with the Wawasan Nusantara (Archipelagic Concept).

CSO: 5500/2214

SRI LANKA HOSTS NEWS EXCHANGE CONFERENCE

BK251206 Hong Kong AFP in English 1047 GMT 25 May 81

[Text] Colombo, 25 May (AFP)--Sri Lanka's minister of information and broadcasting today said that Asian countries, while criticising Western news agencies for an information imbalance, did nothing to disseminate information about themselves.

Anandatissa De Alwis, minister of state (information and broadcasting) inaugurating a four-day conference on news exchanges among Asian countries said, "Nobody does more injustice to us than we do ourselves."

The conference is being attended by secretaries of ministries of information and broadcasting and heads of national news agencies of eleven Asian countries--Bangladesh, India, Indonesia, Malaysia, Maldives, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka and Thailand.

They are discussing ways of developing a mechanism for exchanging news and information among Asian countries.

The conference is jointly sponsored by Sri Lanka's Ministry of State, the country's national news agency LANKAPUWATH and the Singapore based Asian Mass Communication Research and Information Centre (AMIC). In addition, financial assistance is being provided by the United Nations Development Programme (UNDP).

Mr De Alwis, a former journalist, said that newsworthiness was one of the important factors in the information distributed by international news agencies. What was of news value in an Asian country might not find a place in a Western newspaper, he said.

"The time has come," he said, "to review how much of the criticism levelled against Western news agencies is valid."

He said that while criticising the West, Asian countries did nothing to disseminate information about themselves. "We don't seem to care enough to know about each other," he said, adding, "We must find some method to put right our own information imbalance."

"Let us laugh together. Let us cry together," the minister said, urging the conference to devise some ways for exchanging information among Asian countries.

CSO: 5500/2214

DISCUSSIONS INITIATED TO EXPAND NEWS SOURCES

BK231154 Colombo International Service in English 1045 GMT 23 May 81

[Text] The Ministry of State has initiated discussions for exchange of news with countries such as Bangladesh, China, Japan and Pakistan. An agreement has already been signed with the PRESS TRUST OF INDIA [PTI] news agency under which Sri Lanka will soon be getting a continuous on-line transmission of news from India. The PTI will also make available the services of its worldwide operations. The local distribution will be handled by the national news agency LANKAPUWATH, which has signed a similar agreement with the Philippines news agency.

Secretary to the Ministry of State (Sarath Amaragama) said that previously Sri Lanka had been depending entirely on the major networks for foreign news. The government was now taking action to reverse this trend in a real attempt to get supplementary sources of news for the first time.

(Amaragama) said that following recent discussions between Minister Anandatissa De Alwis and the Indian information minister, Sri Lanka will be getting a regular newsreel package from India for use by the local television service.

The secretary explained that tariff rates had been a major constraint for news exchanges and this and other connected problems would be discussed at a regional seminar opening in Colombo on Monday [25 May]. The participants in the seminar will be secretaries of the ministries of information and broadcasting or their nominees and heads of national news agencies from Bangladesh, India, Indonesia, Malaysia, the Maldives, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka and Thailand. The keynote address will be delivered by Minister of State Anandatissa De Alwis.

CSO: 5500/2214

THAI NEWS AGENCY TO LINK WITH ASEAN NETWORK

BK1803A8 Hong Kong AFP in English 0335 GMT 18 May 81

[Text] Bangkok, 18 May (AFP)--The THAI NEWS AGENCY (TNA) plugs in to the news exchange network of the Association of Southeast Asian Nations (ASEAN) this week, TNA said today.

It is the fourth of the five ASEAN member states' agencies to join the network, which operates through a computer port at the PHILIPPINES NEWS AGENCY (PNA) in Manila.

The move follows a reduction by the Thai Government of the so-called press bulletin service (PBS) computerized communication tariff to 1,000 dollars a month, the same rate as in Malaysia and the Philippines.

Foreign news editor Abson Tryon said TNA planned to send about 15 items a day in an initial stage for redistribution to the Malaysian agency, BERNAMA, and the Indonesian agency, ANTARA.

At the same time, it will receive news from the other three agencies, which will be vetted and translated for local subscribers.

Singapore, the other member of ASEAN, does not have a national news agency.

BERNAMA, ANTARA and PNA began swapping news on their computerized network last June. TNA will host the annual meeting of ASEAN news agencies this year.

The ASEAN agencies are working toward the creation of the so-called ASIAN NEWS NETWORK (ANN), a project actively supported by the United Nations Economic, Scientific and Cultural Organization (UNESCO).

The idea of an Asian network gained momentum in New Delhi last December when socialist and non-socialist news agency delegates voted for the existing, Jakarta-based Organization of Asian News Agencies (OANA) to act as the nucleus for ANN. Malaysia's state-owned BERNAMA will host the next related UNESCO meeting in Kuala Lumpur in August when ANN may be officially launched.

It would probably tie together about 22 Asian wire services, including the Soviet Union's TASS and Iran's PARS. The idea is to lessen dependence on the four major Western news agencies, criticized for distorting, through errors of omission and commission, news of the Third World.

CSO: 5500/2214

LINEAR ANTENNAS IN 30-1000 MHz FREQUENCY PLANNING DESCRIBED

Prague P'T REVUE in Czech No 1, Jan 81 pp 26-28

[Article by Eng Bohumil Simicek, Communications Research Institute, Prague: "Spatial and Polarization Discrimination of Linear Antennas From the Point of View of Frequency Planning"]

[Text] Just as in lower frequency bands, mutual interference between individual facilities in the 30-1000 MHz band depends on the radiated power and the directions in which it is emitted.

Interference is also affected by the type of propagation in this part of the frequency spectrum, where exclusively direct waves are used in special-purpose communications, since the spatial component of the radiation is lost into space except in unusual sporadic occurrences of the E_s layer. Similarly, the near-ground component of the radiation, which is next to the surface of the earth, dies out after a short distance.

In this extremely broad frequency range, there are four wide bands assigned to television, two assigned to FM, and a number assigned to fixed and mobile services, radio navigation and space communications, while two bands are assigned to radio amateurs.

Television has the highest radiated power, up to 1,000 kW, while FM broadcasts are on the order of 100 kW; the radiated powers of other broadcasting facilities mostly amount to only a few tens of watts. But the range and accordingly the mutual interference of stations on the surface depends in this region not only on the radiated power, but also on the height of the antenna above the surrounding terrain. Television and FM are the leaders in this respect as well, since because of their importance their transmitters are built on high ground and their antennas located on high supports.

The magnitude of the interference is also affected by the mutual polarization of the signals emitted. For a network of mobile links, vertical polarization is used because of the simplicity of the design and the ease of mounting antennas on vehicles, while for fixed facilities horizontal polarization is generally used, or sometimes vertical or 45-degree oblique polarization; circular polarization is used for communications with satellites. Horizontal polarization predominates in television and FM, although in order to decrease interference in the networks some stations use vertical polarization.

Discrimination by polarization improves the interference ratios by an average of 10 dB; in reality the figure is about 25 dB in level terrain and only 3 dB in mountainous or extremely broken terrain.

The antennas, their gain and their electrical properties are governed by the frequency used, since their dimensions vary with wavelength, and also by the importance of the service in question, i.e., the resources which it has available to build these antennas.

With the exception of certain mobile antennas, e.g., antennas on locomotives and trolleys, nonshortened antennas, i.e., with a length of at least $\lambda/4$, are used, while television and FM use powerful antenna systems which concentrate the radiated energy along the earth's surface.

The antenna gain in the 30-1000 MHz region is related to the maximum radiation of a half-wave dipole, which has an amplification 1.64 times as great as that of an isotropic radiative source, i.e., a 2.04 dB advantage.

The "antenna beamwidth" means the angle over which the radiative intensity drops by 3 dB.

Antennas for the 30-48.5 MHz Band

Antennas for this band, which is assigned to various types of services, are still rather large. With stationary transmitters, the following are the most important types:

The ground plane antenna generally is actually a quarter-wave antenna with the folded radiator located vertically above a conductive plane, which is frequently replaced by several long horizontal radiating arms about /4 long. These antennas are vertically polarized, the radiation pattern in the horizontal plant is circular while that in the vertical plane resembles drops flying above the horizon.

The second type of vertically polarized antenna is the sleeve vertical dipole. This country frequently uses a variant in which the lower sleeve part of the dipole is replaced by two oblique arms, so that the dipole has the shape of an inverted Y.

In communication systems using horizontal polarization, crossed dipoles fed with a 90° phase difference are used for the controlling base station. Their horizontal radiation pattern is approximately circular, while the vertical pattern has the shape of a vertical oval and the gain is negative, -1.5 dB. For fixed-station communications, dipoles with reflectors or relatively short Yagi antennas are used. Their gain does not exceed 4 to 6 dB.

Television Transmitting Antennas

In contrast to antennas for other types of communications, considerable pains are taken with television-transmitting and FM antennas and large sums are invested in them. Their task is to concentrate the radiated energy along the earth's surface, which is achieved by vertical lining up of conphasally-fed radiators. In cases

Antennas for the First and Second Television Bands

What may be called our four most important television antennas transmit in the first television band. They are at Prague, Ostrava, Ceske Budejovice and Bratislava. Excepting the Prague antenna, whose radiation pattern is designed to be circular and whose radiators are, from considerations of size, composed of half-wave dipoles, the rest of the antennas consist of pairs of full-wave dipoles and their radiation patterns are directional.

Abroad, plans are being made eventually to leave this band and transfer television operation to bands IV and V. The reason for this is that in the summer months the effect of sporadic emergence of the E_s layer leads to long-range propagation in these frequencies and thus to interference with transmitters at distances of 700 to 2,500 km. In contrast, frequencies in the first band propagate easily over terrain obstacles. As a result, the area around the Cukrak transmitter, for example, does not have repeaters for the first television program, while many of them will be required for the second program, particularly in the areas of Lodenice, Zadni Treban, Zdice and the like.

We have only two high-powered television transmitters working in the second television band, at Praded and Kralova Hola. Since FM transmitters operate on these frequencies in some neighboring countries, the trasmitter in Kralova Hola uses vertical polarization. The radiated powers in these bands are on the order of 100 kW and the vertical pattern is not adjusted.

FM Antennas

Our country assigns the 66 to 73 MHz band to UHF FM broadcasting and is preparing the band from 100 to 108 MHz. Transmitting antennas for this type of service are similar to television antennas but are subject to less stringent requirements as regards both impedance and method of radiation. Polarization is generally horizontal, but where there are television transmitters with vertical polarization, FM also uses it.

The 73-84 MHz Band

This band, which follows after our FM broadcast band and ends below the four television channels, is assigned primarily to mobile facilities.

Here operate the radio nets of the rescue service, the transport enterprises, agriculture, the construction industry and the like, including the experimental radiotelephone network connected to the public television network. The polarization is most often vertical, and the antennas of the base stations are individual vertical dipoles or, in exceptional cases pairs of them. Radiated powers are mostly below 10 W.

The 108-174 MHz Band

This too is assigned to services, primarily mobile ones. Most important here is the section between 150 and 174 MHz, which is assigned to the radiotelephone networks,

where it is necessary to concentrate the raditaion in certain directions along the ground surface, this is achieved by a suitable spatial distribution of the component radiators and by the method used to feed them.

A modern television antenna is a system which is frequently composed of as many as 64 identical radiators or antennas. Each of these units is a directional antenna composed of several radiating elements, frequently dipoles in front of a reflecting wall. The antenna units are located in vertical lines, and are pointed in some direction in accordance with the required directional pattern. The resulting radiation intensity in the chosen direction S is given by vector addition of the energy contributions from all radiators radiating in this direction. The magnitude of these energy contributions depends on the radiation patterns of the individual units and in this case on the size of their contributions in direction S, while their phase relationships are determined by the differences in the path length in direction S and the phases with which the individual antenna units are fed.

The antenna units are connected in parallel and are impedance matched by means of coaxial distributors with impedance transformers.

The gains of antenna systems with circular radiation patterns in the horizontal plane range from 8 to 17 dB, equivalent to a power amplification of 6 to 50 times.

Mutual interference in a ground network is affected primarily by the shape of the horizontal radiation pattern, which is specified as circular for most transmitters with an allowable deviation of ± 2 dB from the ideal circle. With this specification, a radiation pattern resembling a star, at whose vertices the radiated power is equivalent to a value of 100 percent, while at the maxima the radiated power is equivalent to 40 percent of the maximum, is "circular."

The problem of achieving perfect circularity or smoothness of the radiation diagram in the horizontal plane is inherent in the phase differences between the contributions of the radiation directed toward the critical azimuths from neighboring walls and depends very intimately on the magnitude of the cross section of the support structure to which the antennas are fastened. Here electrical requirements leading to minimum cross section, no greater than 0.9 for the largest frequency in the working band, collide with the requirements for mechanical strength and solidity of the support. For antennas in the band from 470 to 790 MHz, where the required gain is 14 to 17 dB and the construction height of the antennas is about 20 meters, the antenna must be made mechanically strong by using a laminated cylinder, in which the antenna is installed. With these antennas it is possible to achieve a circularity of the horizontal radiation pattern within tolerances better than ± 1 dB.

In antennas with high gain, the beamwidth in the vertical plain decreases to 2 or 3 percent and the intensity drops rapidly as the angle is increased, reaching a deep minimum which in a number of cases faces inhabited areas. Accordingly the vertical pattern for high gain antennas is adjusted, i.e. tilted toward the horizon, and its minima are so compensated that the contour approximates the cosecant^2 curve. In this way the terrain from the foot of the antenna tower to the horizon is covered by an approximately constant electromagnetic field intensity. The pattern is generally adjusted by changing the phase in the vertical rows; the result is to decrease the gain and increase the undesirable radiation lobes directed at elevations several degrees above the horizon.

among which will be the communications and public radiotelephone network. Its first base stations will be in Prague, Brno and Bratislava.

The antennas of the base stations in this network will use vertical polarization, while that in Prague will have an approximately omnidirectional radiation pattern. Brno and Bratislava will have directional antennas. Their radiated power will be about 5 W. The antennas will be thin vertical dipoles, dipoles with reflectors or the dipoles in front of reflecting walls used for television repeaters. Since there will be many voice channels in operation at each station and since only two transmitters and two receivers can be coupled economically to one antenna, the main problem of these antennas is that of locating them in a common location which is suitable for connection with the telephone network.

The 174-230 MHz Band

This is the carrier band for our first television program. The radiated powers here are on the order of 100 kW. What was said in the general section applies to these antennas. Only exceptionally is the vertical pattern adjusted.

The 230-470 MHz Band

The band from 230 to 260 MHz is used by few-channel directional VAM radiotelephone communications, while the bands around 300 and 440 MHz are allocated for the radiotelephone network of mobile ground services. The antennas for directional communications in the 230-260 MHz bands are Yagi antennas, generally with a gain of about 4 to 7 dB, but in this band it would also be easy to produce antennas with a gain of 12 dB, a beamwidth of 40° in the plane of the dipole, and a front-to-back ratio of 22 to 28 dB. These antennas are capable of communication over great distances and of decreasing mutual interference in the networks. In frost areas, however, attention must be paid to the fact that narrow-band Yagi antennas are sensitive to icing, which may considerably decrease their directional capabilities.

The 470-790 MHz Band

This is the carrier band for the second and possibly a third television program. Everything which was said in the general section about television antennas applies to these transmitting antennas.

However, something more should be said about television repeaters, of which nearly a thousand are operating in bands I to III for the first program in Czechoslovakia, while there are nearly a hundred of them in band IV for the second program. Their radiative powers in bands I to III are a few watts, with a maximum of 50 W. In the 470 to 790 MHz band, however, powers from 2 W to several kW are planned.

The transmitting antennas may also be groups of four full-wave dipoles or Yagi antennas. In the fourth and fifth television bands, Yagi antennas are the most suitable because of their narrow radiation beam and the resulting ease of creating various patterns which correspond better to the shape and requirements of the area to be covered. The gain of conphasal antennas units is 10.5 to 11.5 dB and the gain of Yagi antennas is about 9.5 dB.

NEW TV, FM TRANSMITTING FACILITIES IN CSSR DESCRIBED

Prague, TELEKOMUNIKACE in Czech No 2, Feb 81 pp 20-21

[Article by Eng Kiri Novotny, Office of Radio Communications, Prague: "Growth of the Network of TV and USW FM Transmitters"]

[Text] The article "The Network of Television Transmitters at the End of the Sixth Five-Year Plan," published in TELEKOMUNIKACE No 9, 1980, was accompanied by a map showing the status of the network as of 1 July 1980, including three transmitters which were still under construction at the time. These transmitters are now part of the network for the second television program.

The first of them was started up on 11 December 1980 at the summit of Liticky Chlum in Rychnov and Kneznou Okres. This is essentially a 100-watt frequency converter with a traveling wave tube. It is already in production by TESLA Hloubetin as prototype equipment, but has not yet been put into series production. Technicians of this enterprise adjusted the device for the necessary frequency conversion and prepared it for operation, while the rest of the work was carried out by staff members of the oblast Office of Radio Communications in Vychodni Cechy and the Special Maintenance and Installation Plant of the Office of Radio Communications in Prague. The converter receives a signal from the Trutnov 23 base transmitter located on Cerna Hora and transmits it on Channel 28 with horizontal polarization. Its simple antenna system is composed of three units so oriented that they cover primarily the cities of Rychnov and Kneznou, Vamberk and Kostelec and Orlici. The radiated power has a maximum of 300 W. This transmitter-converter will be in operation on Liticky Chlum only temporarily; it will be replaced later by a 5-kW transmitter which will make it possible to produce a radiated power of 100 kW. This definitive solution will become possible in 1982 at the earliest, and accordingly the Pffice of Radio Communications in Prague decided on a provisional approach which made it possible to improve the reception situation in the area, at least temporarily, as early as last year.

On 17 December 1980 another main transmitter for the second television program was ceremonially put into operation on Devin peak in the Pavlovske Vyruchy Mountains. This event will be the subject of a separate article in this journal, and accordingly we will simply note briefly that the transmitter, designated Mikulov 26, operates on Channel 26 and that its maximum radiated power is 300 kW.

A day later, operation of the Vimperk 32 base transmitter of the second television program was ceremonially inaugurated at Marsky Vrch in Prachatice. The construction of the new facility and installation of the operating equipment are discussed in detail in a separate article, and accordingly it suffices to repeat here that the transmitter, with a power of 5 kW, operates on Channel 23 with horizontal polarization and that its radiated power is 100 kW.

In December 1980 there were also important changes in the USW FM broadcast transmitter network. The Office of Radio Communications in Prague completed the reequipping of the radio communication facilities at Praded and Bukova Hora, making it possible to increase the output of the existing transmitter and begin the operation of three new transmitters.

At the Traded facility, on 4 December 1980 the operation of the 1 kW USW FM transmitter for the Hvezda program ceased operation. Since then, six (or rather two groups of three) new Polish ZARAT NRU 3 passive-reserve transmitters have been in operation there. The transmitters for the Hvezda program operate on the previous frequency of 68.66 MHz, transmitters of the Praha national program at 70.16 MHz. The output of each of these transmitters, in keeping with their type designation, is 3 kW. In essence they differ from the previously introduced ZARAT NRU 10 and NRU 6 transmitters only in the final stage, which in the present case has a Q 3.5 tube (produced by Lamina in Poland). Also new is the antenna system, which was supplied by Tesla Hloubetin. It consists of 16 units symmetrically disposed in two tiers. The horizontal radiation pattern is circular, and the radiated power of each of the transmitters is 5 kW; the carrier waves are vertically polarized. Thanks to the considerable altitude, the transmitters cover most of Moravia with a high-quality broadcast signal.

Another facility which had its USW broadcast transmitters modernized in 1980 is the station in Bukova Hora. Two sets of three Polisy-produced transmitters were installed here too but these were 10-kW units. The earlier 4-kW transmitters were used only to broadcast the Hvezda and Vltava programs; the Vltava program could not be broadcast in stereo. They ceased operation on 8 December 1980. After a period of less than 9 hours, required for connection of the antenna feeders, the new transmitters of the Hvezda and Vltava programs at frequencies of 72.20 and 70.58 MHx, i.e., at the same frequencies, were put into operation. Broadcast of the Praha program at 69.26 MHz was begun on 25 December 1980.

Since 9 December 1980 the Office of Radio Communications in Prague has been operating all its Vltava program transmitters in stereo, and since that date all of its USW FM transmitters for the Hvezda program have been operating 24 hours a day. It should also be noted that all transmitters of the Hvezda program will be gradually converted for stereo transmission. The Office of Radio Communications in Prague has a total of nine of them, four of which are now broadcasting in stereo. The Prague transmitter (Cukrak) has been broadcasting in stereo since 1 January 1980, that in Liberec (Jested) since 1 July 1980, and those in Brno (Kojal) and Ostrava (Hostalkovice) have been broadcasting experimentally in stereo since 16 December 1980. Conversion of the remaining five transmitters depends on the time of delivery of additional parts which have been ordered, especially encoders. The workers at the Office of Long-Distance Cables in Prague distinguished themselves in expanding stereo transmission by designing the necessary broadcast cables and are preparing the other equipment.

The readers of our journal last read about the Hostalkovice radio communications center in issue No 2 of 1980 in connection with its complete renovation and

ceremonial commencement of operations in its newly-built operations building. At the time, the new facilities were still covered with scaffolding, and the reconstruction of the original building was also in full swing, so that the entire area was a real construction site. Now all of the construction work, which has been carried out by Pozemni stavba [Surface Construction] Ostrava according to plans by architectural engineer Oulicky of Spolprojekt Prague, have drawn to a close. Workers at the Hostalkovice radio communications center, which at the end of 1980 celebrated the 25th anniversary of the beginning of television broadcasting in Ostrava, thus received for their anniversary an attractive gift in the form of an operations building of modern design which, together with the new antenna tower and the reconstructed original building, will be one of our most functional and handsomest radio communications facilities. [It is presented to our readers in the accompanying picture [not reproduced], by photographer Karel Suzan.]

8480
CSO: 5500/3015

SITUATION, ESTABLISHMENT OF TELEPHONE EXCHANGES EXAMINED

Budapest MAGYARORSZAG in Hungarian No 19, 10 May 81 p 24

[Article by Andras T. Turi: "Exchanges on Cinderblocks; Temporary Solutions; The Seven Digit Telephone Number Is Coming"]

[Text] A poor man cooks water, as the saying goes, and in telephone matters this is not far from the truth. Because what is true is true, under the obsolete domestic technical conditions even the billions are enough only to fill up the "cracks." It is a strange paradox that the BHG [Beloiannisz Telecommunications Factory] telecommunications enterprise, which deals with the manufacture of telephone exchanges, has long been manufacturing for foreign orders--Iraqi, Cuban, etc.--exchanges at a technical level which surpasses the domestic one. But the obsolete rotary type exchanges still used in Hungary must be supplied with parts and this certainly causes no small problem in working out long-range plans, not even to speak of the concomitant financial losses.

It has been spoken of frequently already but the hard fact remains--full modernization of the telephone network would require a very large sum. Of course, one must modernize, but only to the limit of the material possibilities, step by step.

Lacking a Building

There are now about 380,000 to 400,000 lines operating in Budapest. The number waiting? Well, that's 168,000. It is hardly possible to bring needs and possibilities into balance in one or two years, or even within the decade. In this difficult situation there are other, even more burning problems which require urgent solutions. They are: the birth of new residential areas, the saturation of the old city quarters and the backwardness of the provinces. In addition, the residential areas in general are being built farther from the center of the city. Because of this greater distance a difficult situation is being created in telephone service because a large number of cable pairs can be built out to them only at significant cost. And the old city quarters are completely built up, so new buildings cannot be built in the vicinity of the telephone exchanges, and so the development of the exchanges moves within set limits. In the provincial cities and settlements also the construction industry capacity is restricted and the time limits are often too long.

The explosive development of industry and the constant increase in human needs, however, cannot do without the parallel development of telecommunication equipment

including the telephone. Everywhere in the world, and thus in our homeland also, they are seeking economical solutions to the development of telecommunications. This directed attention to the development of crossbar sub-exchanges placed in containers.

Containerized telephone exchanges are made significant primarily by the fact that they can be completely assembled in the factory in 4 months and can be placed in operation within one month after being shipped to the site. This is especially advantageous in the case of residential areas. If a final exchange is built or if the network is expanded further, the container can be transported to a new service site.

In Case of Power Failure

He whom the snake bites is also afraid of the lizard. This half joking definition of the fear of the postal authorities comes from Miklos Balogh, chief of the developmental department of the Budapest Telephone Directorate. According to him the press has attacked the post office so much--with or without foundation--because of the inner city telephone exchange and people sneered at it so much that they tried to be extraordinarily circumspect now when working out the container program. It is true that one each Ericsson and a GDR type containerized exchange were operating in Hungary earlier, but the development of a domestic type promised to be a gigantic task.

The problem was primarily of a technical character. The so-called 7 A system is definitive in the telephone network at present. This limits the number of main exchanges that can be established. By way of demonstration: in a six digit system a maximum of three main exchanges can be built in Budapest. (This is why, in the interest of a better use of the number field, they are considering switching over to a seven digit system. Of course, this would require years.) In the 7 A system they developed several types of sub-exchanges for better use of the 40,000 number fields of the main exchanges and to reduce the length of subscriber lines. For example, in the switching stanges one can use the so-called PAM exchanges, which use crossbar machines and have a line capacity of 400. In the operational areas of the 7 A exchanges this equipment still produces the cheapest possibilities for providing residential telephones.

But the situation is different at the largest Budapest telephone exchanges. These have ARF type equipment and up to now they have not had sub-exchanges. Among other things they did not because their cooperation with the 7 S exchanges had not been solved; this involves the so-called transisting problem. Now, at the time of the development of the containerized exchanges operating in Budapest, these problems have been solved also. When the new circuits were built in it became possible to develop larger capacity ARF sub-exchanges also.

Basically the development of the containerized exchange consisted of two parts. One part involved the circuits and the other part consisted of the mechanical design connected with the container housing and internal arrangements. The pace of the developmental work was determined by the fact that by the end of 1980 they had to place 13 containerized exchanges into operation within the framework of a 35,000

line, out of turn expansion of the Budapest network. Development and manufacture took place virtually in parallel; more than once in the course of installation they had to make minor modifications on already finished relay bands.

The BHG telecommunications enterprise and the Budapest Telephone Directorate signed a contract concerning development of the containerized exchanges on 23 February 1978. According to this the factory first prepared two each laboratory type models using the new developmental circuits. These were tested, supplemented by existing circuits of the Ferenc ARF exchange, to prove the operability of the imagined circuit links. The most important finding of the tests done in June 1978 was that the receiving end of the main exchange could be simplified, and this resulted in significant savings, amounting to several million forints. Then construction of a containerized exchange began in the container assembly hall of the BHG, using a frame manufactured by Budamobil. This phase was characterized at first by mechanical work. In the meantime the modified circuits were prepared, series manufacture began and the receiving end of the main exchange was installed. By the end of the year work on the frame was completed and they mounted walls and roof of a so-called sandwich structure insulated by a layer of hard polyurethane foam 100 millimeters thick. Test and control equipment was built into every model to constantly monitor operations and effectively eliminate errors.

Converter equipment provides power to the exchange, providing 48 volts of direct current at a load of 60 amperes. The built-in storage batteries, which are suitable for operation in a closed area, can provide current for 5 hours in case of power failure. The exchange can also be operated from a generator, from an outside connection, in case network power fails for a longer time.

Only two concrete blocks of sufficient strength are needed to set up the container in the open; the container, weighing a total of 16 tons, is set up on these. An iron stair with hand rail leads into the exchange and one can enter through an outward opening door with safety lock and a light protective door which prevents break-ins.

35,000 Telephone Lines

On 6 January 1979 the already finished containerized exchange was lifted onto a vehicle and it started for the Kobanya-Ujhegy residential area, the Kadokoz. A 6 month testing phase followed; nothing serious was noted in connection with the operation of the circuit. The load tests were successful also and the first Budapest containerized exchange was put into operation on 14 December 1979, as the result of much anxiety and three-shift work lasting for months--ahead of schedule.

The army of postal workers, assemblers and developmental engineers who participated in the work had won, if not a war, at least an important battle. Today there are 13 containerized exchanges in operation--three in Bekasmegyer, two each in Kobanya, Csepel, Budafok and Csalogany Street and one each in Pesterzsebet and Pestlorinc. This means 13,000 lines; a total of 35,000 lines with the 11,000 each expansion of the Ujpest and Inner City telephone exchanges. Another three containerized exchanges will begin operation this year in the capital--one in Zuglo and two in Rakoskeresztur.

Naturally, all this is only small consolation to the 150,000 Budapesters who need telephones. And it is also true that this year's containerized exchange program could have been expanded, considering the new increase in telephone fees in the recent past. Because ultimately the telephone is today an indispensable part of everyday life.

8984
CSO: 5500/3016

ECOWAS FUND DEBATES ON TELECOMMUNICATIONS REPORTED

Major Issues Discussed

Banjul THE GAMBIA NEWS BULLETIN in English 6 May 81 p 1

[Text]

THE Experts Committee of the Board of Directors of the ECOWAS Fund met in Banjul last Saturday to discuss the financial arrangements for its telecommunications extension and the basic documents relating to the loans and guarantees of member states.

The meeting which was a preparatory for the 7th Session of the Board of Directors of the ECOWAS Fund for co-operation, compensation and development, held on Monday, also discussed the construction of ECOWAS headquarters in Lome.

The committee adopted the agenda of the meeting after an extensive discussion of the matters concerned.

Member state contribution was delved into at length. The Managing Director of the ECOWAS Fund Mr. Robert C. Tubman appealed to member states having arrears to pay up as soon as possible.

The meeting was informed that the management takes into consideration the placement of funds security, accessibility and interest rates. Mr. Tubman had sent out missions to explore the possibility of placement of funds in member states.

On the question of contributions to the special Fund for Telecommunications, it was observed that the period of payment should not be decided upon as the council of Ministers had not yet adopted the rules and regulations of the special fund.

At the 7th Meeting of the Board of Directors of the ECOWAS Fund, the Minister of Economic Planning and Industrial Development Dr. M. S. K. Manneh informed the delegates of the government of The Gambia's deepest commitment to the objectives of ECOWAS, to the development of the Fund as the major instrument of economic integration of the community and for the tangible expression of community solidarity.

The major items of the agenda which will be considered for subsequent consideration and adoption by the board, Dr. Manneh said, were the statement of general policy and procedure for loans, investments and backing, the general conditions applicable to loans, guarantees and counter guarantees and the rules and regulations of the Special Fund for the improvement and development of telecommunications in ECOWAS member states.

Dr. Manneh indicated some of the major issues and challenges that the community will have to face in the 1980's and that the Fund will have an important role to play in assisting the community in solving these problems by establishing the basic infrastructure and industries indispensible for successful economic integration.

He added that to the outside world this may be a small step but it is a major step forward in the difficult struggle for economic integration.

As is the procedure that all matters relating to finances should be put before the Financial Committee, the Managing Director of the Fund Mr. Robert C. Tubman told the meeting that the committee has concluded its deliberations and a report will be presented soon.

Mr. Tubman assured the Board of Directors that he and his staff are at their disposal to answer all questions regarding items on the agenda and any other relevant matters.

He welcomed delegates to Banjul and thanked them for their undivided attention.

Deliberations End

Banjul THE GAMBIA NEWS in English 8 May 81 p 1

[Text]

AT the end of its seventh session, the Board of Directors of the ECOWAS Fund established a fund to be known as the Fund for Co-operation, Compensation and Development which will derive its resources from contributions of member states to be determined by the Council of Ministers.

The method of determining the contributions and payment of member states and all related matters will be treated in a protocol.

The board decided that the funds shall be used for financing projects and compensate member states that have suffered losses from the application of the provisions of the treaty on the liberalisation of trade within the community.

Foreign investments in member states were guaranteed in respect of enterprises established in pursuance of the provisions of the treaty on the harmonisation of industrial policies. Provision was made to facilitate the mobilisation of internal and external financial resources for the member states and the community.

The provisional agenda submitted to the Board of Directors by the Experts Committee was adopted and observations were made on the following:

- **Request for a consultant from the EEC.**
- **Meeting in Geneva on Community Enterprises.**
- **Contributions by member states and Special Fund for Telecommunication.**

After the presentation of the report of the Committee of Experts, the Board endorsed their recommendations. It was agreed that in future all financial and technical matters should be placed before the experts meeting prior to their submission to the board.

The Managing Director was asked to pursue contacts and negotiations with donors in order to secure the funds for the national links which the EDF has declined to finance. The board was of the view that the whole telecommunications programme should be regarded as an intergrated project.

The Republic of Ghana extended an invitation for the next Board of Directors meeting to be held in Accra. The invitation was accepted and the meeting is scheduled for November.

The Minister of Economic Planning and Industrial Development, Dr. M. S. K. Manneh who is also Chairman of the Board expressed happiness for the co-operation and understanding that prevailed throughout the meeting.

He appealed to member states to continue to give their support and confidence to the Managing Director and his staff and wished them success in their difficult task.

The Board of Directors of ECOWAS Fund expressed its profound gratitude to the President of The Gambia, Sir Dawda Jawara and to the people and Government of The Gambia for the warm reception extended to them as well as the facilities placed at their disposal for the smooth conduct of their work.

CSO: 3500

PRIME MINISTER DEDICATES NEW MEDIUM-WAVE FACILITIES

Religious Radio Station

Mbabane THE TIMES OF SWAZILAND in English 4 May 81 p 1

[Excerpts] Africa needs Christ today more than ever before, and also needs help to build up a spirit of love and fellowship amongst her diverse citizens, says the Prime Minister, Prince Mabandla.

Speaking at the official dedication service of the new Medium Wave facilities of Trans World Radio at Mpangela Ranch in the Bushveld on Friday, Prince Mabandla said Africa needed peace and stability to enable it to exploit its vast natural resources and to play its rightful role in international affairs as the second largest continent on earth.

"We sincerely hope that the Christian message you will be transmitting from these studios will touch the hearts of all the inhabitants of this continent and that this message will help to generate on this continent a warm spirit of love for fellowship and a deep feeling of concern for the welfare and legitimate aspirations of the next man," said the Prime Minister.

He expressed the feeling that only when the inhabitants of Africa are imbued with the Christian spirit of love and fellowship, will they readily accept the cardinal principle that every citizen of this great continent has an equal right to receive a fair share of the "honey and milk."

"Only then will peace and harmony prevail on this continent. And only then will great Africa be able to march forward to prosperity with confidence", he said.

This, he said was a great challenge to Trans World Radio and to all peace loving nations who have the interest of Africa at heart.

"I therefore beseech God Almighty to give this Christian Radio Ministry unfailing strength in all its endeavours to accomplish this great task", continued the Prime Minister.

The people of Swaziland, he said, were grateful for the opportunity to make their modest contribution to the noble work of propagating the Christian message to other parts of Africa and beyond.

He declared: "We regard the establishment of this religious radio station on our soil as an opportunity to serve the Lord.

"We feel that although we are a small nation, God has selected us to serve him in this capacity just as He selected the small village of Bethlehem to be the birth place of Christ and thus to become an important centre of the message of peace and salvation to mankind."

He added: "We believe that where there is Christ, there is always peace and harmony. Peace and harmony are the two most difficult commodities to find on the African continent today."

Transmitter Gift

Mbabane THE TIMES OF SWAZILAND in English 4 May 81 p 1

Gift Will Boost SBS

Trans World Radio will donate to the Swaziland government their present 50 Kilowatts Medium Wave transmitter when they have installed their highpowered transmitters in future.

This was disclosed by Mr William P. Mial during the official dedication of Trans World's Medium Wave transmitters on Friday. Mr Mial is assistant to Dr Paul E. Freed, who is President of the group.

Speaking at the same function, the Deputy Prime Minister, Sen Ben Nsibandze, thanking Trans World for this donation, said government would be proud and indeed grateful when it took delivery of the transmitter.

Relations between the Swaziland government and Trans World, he said were "very good indeed", adding: "Trans World engineers have on numerous occasions provided valuable service in repairing our broadcasting service transmitters."

The word of God, Sen Nsibandze said was the only remedy available that has the power to bring peace to this troubled world.

Broadcasts in Short Wave from Trans World Swaziland began in November 1974, and today programmes are aired in 24 languages throughout Southern, Central and East Africa. Initial tests on the 50 Kilowatt Medium Wave transmitter indicate a strong signal as far afield as Zambia and Malawi.

Trans World is an international interdenominational missionary organisation, whose purpose is to proclaim the message of the Christian faith through the medium of radio.

CSO: 5500/5015

POTENTIAL USES OF 'KOLOS' COMMUNICATIONS SYSTEM

Moscow RADIO in Russian No 2, Feb 81 p 6

[Excerpt] Without the telephone and radio it would not be possible today to supervise offices, crews and the firms of kolkhozes and sovkhozes.

Wire communications is reliable, but it cannot serve all agricultural facilities. It is for this very reason that more than 100,000 single-channel simplex transceivers of the "Granit," "Len," RT-21 and other types, operating in the meter band, are being used at the present time. To set up dispatcher communications networks based on these radio stations within an administrative district, in which there are, for example, 25 businesses, would take up to 40 radio channels, which creates serious problems with respect to the distribution of a limited number of frequencies.

For more efficient utilization of the air waves organizations of the Ministries of Communications and USSR Communications Industry have, under contract with the USSR Ministry of Agriculture, developed the "Kolos" UHF communications system. The "Kolos" set enables a rayon center to set up communications with rayon businesses and enables businesses to communicate with each other on just 4-8 channels in the 307-344 MHz band, which is free of interference from other radio networks.

Unfortunately, the adoption of this dispatcher communications system, which is promising for the agricultural industry of the Soviet Union, is inexcusably lagging. The USSR Ministry of Agriculture has not yet drafted plans for the adoption of the "Kolos" system and has not contracted with industry for the manufacture of the equipment. The fact is that with this equipment it would be possible to significantly improve management of agricultural production, elevate the level and timeliness of supervision and significantly improve the operation of farm machinery.

The editorial staff writes this article on the "Kolos" system in order to familiarize practical workers of kolkhozes, sovkhozes and agricultural engineering offices, engaged in rural communications, and also the amateur community with this new equipment.

We also hope that this publication will be an additional stimulus to more prompt action on the part of the interested ministries, especially the Ministry of Agriculture, to adopt this progressive communications system in the agricultural industry.

'KOLOS' COMMUNICATIONS SYSTEM DESCRIBED

Moscow RADIO in Russian No 2, Feb 81 p 7

[Article by I. Kuznetsov, V. Kuz'min and O. Luk'yanova]

[Text] The "Kolos" set includes a central multichannel transceiver with a switchboard, installed in the rayon agricultural administration dispatcher's office (central dispatcher), and up to 250 stationary and mobile subscriber sets.

The central radio station has four frequency channels for transmission (eight channels if there are very many subscribers) in the 343-344 MHz range and as many channels for receiving in the 307-308 MHz range. The minimum separation between adjacent channels is not less than 25 kHz. The transmitting and receiving channels comprise four (eight) duplex tuning-free communications channels.

The transceiver of the central station is built entirely on semiconductor devices and integrated microcircuits. It can operate around the clock, transmitting and receiving without constant attention. However, the number of simultaneously functioning duplex radio channels depends on the load on the system, and they are turned on and off automatically as necessary. For example, at night only one duplex channel remains turned on all the time, and when it is occupied other channels are turned on automatically.

To improve the reliability and range of communications the central station should be erected on the highest possible land feature at a distance of up to 5 km from the central dispatcher's office.

The central dispatcher can establish duplex UHF communications with dispatchers and other subscribers of rayon businesses (sovkhozes, kolkhozes, companies), between radio subscribers of a given or of different businesses, and between radio subscribers and telephone network subscribers through an adapter (see the functional diagram on p. 2 of the supplement).

Here communications between radio subscribers is established by retransmission through the central station with one duplex channel (dual-frequency simplex mode).

In addition the central dispatcher can organize circular communications (conference communications) for specialists and dispatchers of businesses in cooperation with rayon supervisors on radio channels and telephone lines, and if need be he can

establish communications by urgent call, when all the channels are busy. In this case he listens to all the connections, hooks up to one of them and after advising the conversing parties, disconnects the ongoing conversation and places an urgent call.

Radio subscribers of the "Kolos" system are divided into two classes: industrial and priority. Accordingly there are two types of mobile and stationary subscriber radio stations: three-channel "Kolos O" (routine) for servicing industrial facilities, with which it is not possible for some reason to establish wire telephone communications, and four-channel "Kolos P" (priority), installed at dispatcher offices of businesses and in the cars of supervisors and senior specialists of a rayon farm.

The numbers of unoccupied radio channels light up on the display of the central dispatcher's console. To call a radio subscriber the dispatcher pushes the button of one of the unoccupied channels and dials the number of the desired subscriber. A light on the display panel then goes off. Calls are sent by audio signals on different frequencies. To each priority subscriber is assigned an individual call frequency, and to the subscribers of each business, including its dispatcher, the central dispatcher sends a group call. The subscriber stations operate in the standby receive mode, and the automatic called channel search system takes over. When the number of the call matches the number of the subscriber's dial call the automatic search system stops on the channel on which the call is received and the loudspeaker of the subscriber station sounds the call signal. After the group audio call is transmitted the central dispatcher announces the desired radio subscriber. The called subscriber picks up the receiver of his radio set and engages in conversation. The other subscribers with the same number are disconnected and cannot interrupt the conversation.

To call priority subscribers the central dispatcher sends a group call signal on the fourth channel. If after 30 s the subscriber does not answer the call automatic disconnect occurs and the radio channel is released.

We will now discuss the process whereby communications is established between radio subscribers of the "Kolos" system. If a subscriber picks up the receiver of his radio station and any channel is available at that time, he will hear an audio signal. The open channel is engaged and the light of that channel lights up on the display panel of the central dispatcher's console, and the dispatcher queries the subscriber. The latter announces the desired number and, if the number corresponds to a group call, states the desired subscriber's surname. The central dispatcher dials the requested number on his console and sends the call on the same radio channel. This enables the subscriber to monitor the call.

At the end of the conversation the subscribers hang up, the dispatcher sends a ringoff signal, the channel is released and the frequency of the "open" marker is transmitted on it.

But if the subscriber picks up his receiver at a time when all the channels are busy, he will not hear an audio signal and he must hang up.

In each channel there is a device that limits the time of a conversation. If it exceeds 5-6 min communications is automatically interrupted.

The antennas of the radio stations can be installed both on special poles, and on the roofs of buildings.

The "Kolos" communications system provides a new solution to the problem of the technical servicing of radio communications systems. It will become a centralized system and there will be no need for a repair base at each business.

Test operation of the "Kolos" system in Molodechnenskoye Rayon of Minskaya Oblast revealed that it provides dependable communications with good quality. The range of communications on individual routes reaches up to 40 km.

The "Kolos" system is especially promising for use in densely populated regions of the European part of the Soviet Union and in large Kazakhstan businesses. This system undoubtedly should interest other organizations that are in need of dispatcher control systems.

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CSO: 5500/11

BRIEFS

UNIFIED AUTOMATED NETWORK--The scientific technical council (NTS) of the USSR Ministry of Communications examined the results of line tests and of experimental operation of the new K-3600 complex, which is the first 3,600-channel transmission system adopted in our country for the YeASS trunk network. In terms of design, noted the NTS, the K-3600 complex meets YeASS and GOST requirements on basic electrical characteristics and group channel and audio frequency channel parameters, and in terms of a number of parameters -- load, noise, cable amplitude-frequency characteristic reproduction precision by the amplifier and the smaller DP current, it is superior to the best foreign specimens. Extensive utilization of the K-3600 equipment should sharply improve the quality and reliability of circuits and channels of the primary communications network. NTS recommended the K-3600 transmission system as the main system for the construction of new and reconstruction of existing cable trunks. For this purpose it will be necessary to set up series production of the equipment in quantities determined by the plans, and to supplement it with certain systems, the need for which was disclosed during line tests and experimental operation of trunks. According to the statement of NTS, there is also a need to undertake the production of already developed test systems for the K-3600 complex and to organize the development and production of group channel selection equipment, a general purpose in-ground semihardened unattended repeater station container for multichannel analog and digital transmission systems, and a test stand and mobile test machinery, necessary for tuning and operating the trunks. TsNIIS [Central Scientific Research Institute of Communications], Giprosvyaz' [State Institute for the Surveying and Planning of Communications Installations], GUMTS [Main Administration of Long-Distance Telegraph and Telephone Communications] and GSS [not further identified] are faced with the task of developing in the shortest time possible a procedure for reconstructing cable trunks and replacing K-1920 systems with K-3600 systems with the minimum interruption of communications. [By I. P. Maslenkova] [Text] [Moscow VESTNIK SVYAZI in Russian No 3, Mar 81 p 19] 7872

POCKET TELEVISION SET--"Flat screen technology," says Associate Member of the Ukrainian Academy of Sciences S. Sveshnikov, "is based on special semiconductor films." Sergey Vasil'yevich pulls out some object, resembling ordinary glass. "Here is our flat screen," Sveshnikov explained. "The bond between the films in it is so strong that shaking will not hurt it. The screen also has other advantages: the image on it has so much contrast that transmissions can be viewed in bright sunlight. It also has its own 'memory,' which stores transmitted information for quite a long time." The flat screen, developed by scientists, can also be compact without losing sharpness of image. Its operating principle is based on optical electronics. The main idea of the device is the use of optical electromagnetic wavelengths, which occupies a narrow spectrum. Their frequencies are tens of thousands of times higher than the frequencies used in modern radio electronics. And this also means that optical communications is not susceptible to any interference. Optoelectronics makes it possible to develop not only the flat TV, but also portable transmitting cameras, which in the near future can make video taping and transmission of images accessible to an extensive army of amateurs. Optoelectronics will bring about the appearance of an absolutely new lifestyle. For example, there will obviously be a great demand for video games on a disk, similar to a long-play record, on which will be recorded not sound, but an image. The information is recorded and played back from this disk by a fine laser beam. The video game players, along with flat TV screens and portable transmitters, will make the use of video information convenient and accessible. [By T. Bulatova] [Excerpt] [Moscow SOVETSKAYA KUL'TURA in Russian 17 Apr 81 p 6] 7872

CSO: 5500/10

BRIEFS

AUTOMATED EXCHANGE FROM ERICSSON—Jyvaskyla (HS)—The Oy L.M. Ericsson AB [L.M. Ericsson Company] is to supply the Keski-Suomen Puhelin Oy [Central Finland Telephone Company] with a computer-controlled digital AXE telephone exchange. The contract signed on Tuesday involves a 20-million-mark sale and also includes the right to additional purchases. Deliveries will be made between 1983 and 1986. They involve 18,500 subscriber connections and 4,500 terminals. The digitalisation now to be effected will afford the individual telephone user as many as tens of new telephone services. For the telephone company it means more dependable operation than before and economy in addition to the technological advance it represents. The AXE exchange represents a new development in the field of telephone communication in Finland. The degree of domestic participation involved is particularly high. Planning, programming, manufacture, testing, installation and servicing are carried out entirely with Finnish labor. Before this, the Oy L.M. Ericsson AB had supplied the Turku Municipal Telephone Company with a digital exchange. Since 1978 a volume of about 250,000 digital telephone connections has been sold to Finland, over half of it by the Oy L.M. Ericsson AB. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 7 May 81 p 28] 11466

CSO: 5500/2208

PCI PROPOSAL FOR REVITALIZING TELECOMMUNICATIONS

Rome L'UNITA in Italian 8 May 81 p 7

[Article by M.V.: "Telecommunications in Ever Deeper Crisis--Here Are the PCI's Proposals for Recovery"]

[Text] A 30-trillion lire market in Italy in the next 10 years--Separating the manufacturing industries from the service industries--PCI conference with Borghini, Libertini, Milani and Brezzi The question of the SIP [Italian Telephone Company] rates.

Rome--The telecommunications sector is falling apart, while the great and rapid transformations in this field--introduction of electronic switching in telephony, telematics, etc--will create in Italy, in the next 10 years, a 30-trillion lire market (including 10 trillion for electronic switching alone). Hence the danger that the public industry will not be able to handle the confrontation with the big multinationals, who would thus take ever bigger slices of the Italian market.

This is the new alarm that the Communists sounded yesterday during a debate on the topic "The PCI's Observations and Proposals for a New Footing for the Telecommunications Sector," opened by Senator Giorgio Milani's report and by a communication from Piero Brezzi (in charge of the PCI's working group on electronics). The first part of the discussion closed with the statement by comrade Lucio Libertini, while in the evening session, the conclusions were drawn by Gianfranco Borghini of the PCI Directorate.

Challenging the present drafts of the PT [Post & Telecommunications] Ministry's plan for telecommunications, the Communist Party proposes recovery actions articulated on various levels. (1)Institutional foundations: dissolution of the STET [Telephone Finance Corporation] financing company and sharp separation between the manufacturing firms in the sector (Italtel, SgS/Ates) and the service companies (SIP, ASST [National Telephones State Board], Italcable, Telespazio). Separation between the production companies and those that manage the services (these companies presently being divided between STET and the state) is the central and urgent question raised by the PCI, inasmuch as it is the cause of uncontrolled relations between producer and customer and the origin of waste and duplications (as is the case with several firms, such as SIP and ASST, that perform the same service). The PCI proposes unified and efficient management; this means that the operating firms must be gathered into a single autonomous public firm, within the framework of which the various activities would be coordinated in a functional manner.

Introduction of electronic switching: in the opinion of the PCI, the processes of transition, in telephonics, from the electromechanical systems to the electronic ones must be accelerated. This should be done through the introduction of two systems: one corresponding to a national regrouping (Proteo) based on collaboration between national industries, Italtel and Telettra (possibly Ericson also); and the other corresponding to the multinationals operating in Italy (ITT and GTE). Therefore, two systems for transformation of the national telephone facilities, but with the national system favored, not only by incentivation to research and innovation but also in the proportions of public demand.

Development of collaboration between firms should, in the opinion of the PCI, be extended also to telematics (agreements between Italtel and Olivetti) and to the components industry.

Financial crisis: Above all, the PCI is against indexing of the rates of the SIP in order to solve the problem. Here arises the political problem of the foundations of the service. It is significant that the government has tried to solve the problem by eliminating the permit fee almost entirely and setting up an "equalization fund," by means of which the income from the operations of several state firms and concessionnaires are shifted in favor of the SIP. If these measures are to be used simply to reduce the state's direct, explicit contribution to the endowment funds for recapitalization of the STET-SIP, they should be rejected. In the PCI's opinion, these partial measures can be accepted only within the framework of the institutional foundations of the service firms.

In the debate--there have been many representatives of the factory councils, the trade-union leaders, managers of firms--the framework delineated has in large measure confirmed the analysis and concerns expressed by the PCI. Immobilism is in fact creating large market spaces for the multinational industries. As was declared by Falconieri of Italcable, a series of new services such as SWIFT (a network for exchange and processing of all the data for the operations of the internatinal banking service) are being run privately, establishing de-facto statuses that it will be difficult later for the public services to challenge (and many other examples could be given).

The president of the STET, Principe, spoke also; he confirmed the validity of unification in the financing of the manufacturing industries and of the operating companies, inasmuch as this approach is capable of stimulating technological progress and the introduction of new services, as well as guaranteeing employment in the phase of transition to electronic switching.

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CSO: 5500/2212

BRIEFS

'ANATOLIA', 'PARS' SIGN AGREEMENT--Ankara, 21 May (AA)--Visiting Director General of Iranian news agency PARS Dr (Kemal Kharrazi) and ANADOLU AJANSI Director General Cevdet Tanyeli signed an agreement for increased news exchanges in order to further strengthen friendly and fraternal relations between the two countries. Under the agreement, direct telex link will be established between the two agencies to speed up news exchanges. PARS will open a bureau in Ankara and ANADOLU AJANSI in Tehran. [Text] [TA211652 Ankara ANATOLIA in English 1505 GMT 21 May 81]

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